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ABSTRACT

This case study on the Jane Addams Resource Corporation (JARC) is the third of six sectoral studies to provide an in-depth look at individual sectoral employment development programs and their interaction within distinct economic and industry environments. It explores a community-based organization that developed specialized metalworking and training and technical assistance programs to create pathways for advancement for low-income workers while helping small firms compete and survive in Chicago in the face of global competition. Section 1 discusses JARC's programs, historical events that led to its current form, sectoral strategies, and relationships it has formed to further its objectives. Section 2 describes the metalworking industry and competitive pressures affecting metalworking firms and their effect on future employment opportunities. Section 3 looks at how JARC puts its sectoral approach into practice; relationships it built with employers and key industry groups; how it gained expertise on skills standards and training methods for entry-level workers; and how it leveraged its reputation to encourage public and private sectors to increase training opportunities for low-skilled workers. Section 4 describes training programs, including content and approach of metalworking skills courses, and outreach, recruitment, and post-training job placement assistance. Section 5 discusses training program costs and their outcomes. Section 6 reviews lessons learned and strategic challenges JARC faces. (YLB)

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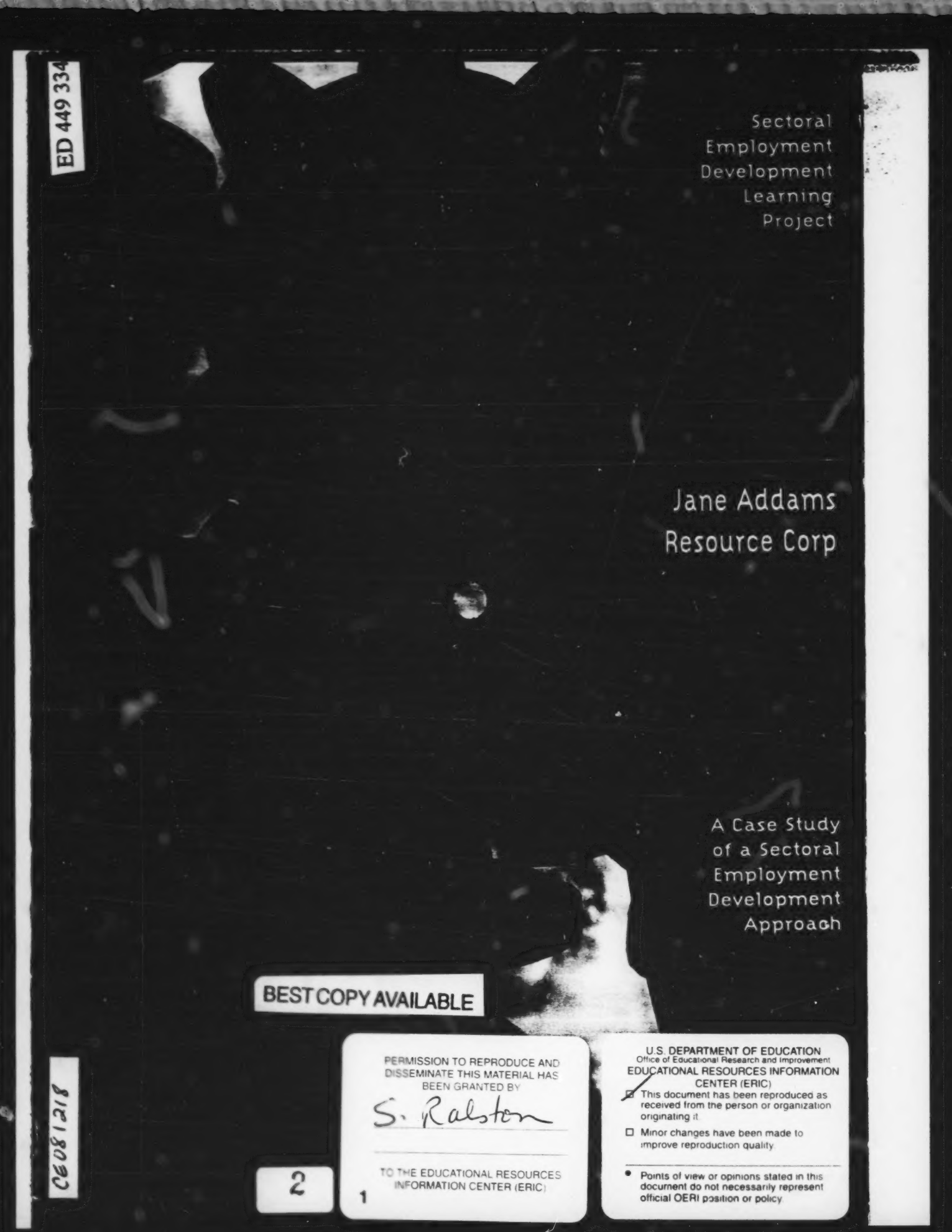

# Sectoral Employment Development Learning Project

# Jane Addams Resource Corp

## A Case Study of a Sectoral Employment Development Approach

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# Jane Addams Resource Corporation

## A Case Study of a Sectoral Employment Development Approach

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**December 2000**

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## The Sectoral Studies

This case study is one of six Sectoral Studies to be published by the Sectoral Employment Development Learning Project, a project of the Economic Opportunities Program of the Aspen Institute. The purpose of these studies is to provide an in-depth look at individual sectoral employment development programs and their interaction within distinct economic and industry environments. The information in the Sectoral Studies should offer insight to policy makers and practitioners on the specific issues involved in operating a sectoral intervention.

Although each of these research efforts is distinct in that it will explore a particular program in a particular industry and regional context, all will answer the same key research questions and use a common research format. The research methodology relies on primary data collection through a series of interviews with program staff, local employers and other key parties such as union representatives, public officials and industry association leaders. That information is supplemented with analysis from internal program documents and financial statements, and a limited use of secondary source materials.

*The Sectoral Studies are made possible through*
*the support of the Mott, Ford and Annie E. Casey foundations.*

## Acknowledgements

The authors thank Anita Flores, Margaret Haywood, Michael Buccitelli and other staff members for sharing the challenges and successes of the organization, as well as their views on the metalworking industry. Special thanks go to Ms. Flores and Ms. Haywood for compiling and organizing program information and background materials on occupational skills standards and other industry information, as well as arranging industry contacts for interviews. In addition, the authors are grateful for the cooperation of the many workers, employers and government and community representatives who participated in interviews and shared their perspectives. The authors thank Polly Vogel for gathering information on the metalworking industry and workforce policy in Illinois, and Micah Marty of the Aspen Institute for the photographs used in this case study. Thanks also go to Peggy Clark, Amy Kays, Maureen Conway and Elaine Edgcomb from the Economic Opportunities Program for their insightful comments on the report.

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As America enters the next millennium with economists predicting a continuing wave of unparalleled prosperity, many low-skill workers are looking at a much less glowing economic future. Manufacturing jobs that have traditionally provided family sustaining wages — often the first step for many immigrants to make their way in this country — are at risk of being exported overseas. Firms need more highly skilled workers as they scramble to meet extraordinarily intense competition from low-cost foreign producers. Frequently the smallest firms have the greatest skill deficiencies. Sadly, it is likely these same firms have never provided training and have little inclination or ability to do so. Nowhere is this more evident than in the metalworking sector in Chicago, Illinois.

This report examines the attempts of one community-based organization, the Jane Addams Resource Corporation (JARC), to intervene and bring about a significant change whereby employers begin to view their employees — even those with the least skills — as assets to invest in and cultivate. The organization wins over employers by delivering services that diagnose skill deficiencies; training that markedly improves workplace skills; assistance that helps firms develop career opportunities for entry-level workers; and various other technical services aimed at boosting productivity and saving jobs. However, its intervention does not stop at providing training and technical services. It involves a strategy of collaboration and relationship-building with industry associations, government and other training providers to raise the bar for skill standards and to increase public and private commitment to workers who need to learn the skills necessary to succeed and become more productive.

The Jane Addams Resource Corporation clearly appreciates that in today's competitive and global economy, economic opportunity for workers begins with the viability of employers. At the same time, by virtue of the organization's roots in the community, it has a bedrock commitment to and connection with its low-income constituency of immigrants and other disadvantaged groups, whose employment options are severely limited by barriers such as lack of education, low skills, language and discrimination. The organization understands both the labor requirements of metalworking employers struggling to compete, and the obstacles and challenges low-income individuals face when trying to make ends meet and provide for their families.

In its sectoral employment strategy, the organization has created a set of training programs and other services that work both for employees and employers. It exhibits the core characteristics of what is considered to be a sectoral initiative[1] as shown below:

## Jane Addams Resource Corporation's Metalworking Training as a Sectoral Initiative

- **Targets a particular occupation or set of occupations within an industry.** Training courses and other program efforts focus on specific metalworking occupations, primarily punch press operator and die-setting related occupations.
- **Intervenes by becoming a valued participant within the industry that employs that occupation.** The organization has established its credibility as a training provider and developed close working relationships with management of metalworking firms. By providing technical assistance alongside training programs, it demonstrates its depth of understanding of production processes, and has become a valued source of industry information and training services.
- **Exists for the primary purpose of assisting low-income people to obtain decent employment.** Training programs target entry- and lower-level occupations in the metalworking field to provide these individuals with the skills needed to advance in the industry.
- **Eventually creates systemic change within that occupation's labor market.** By working with employers on occupational profiling and developing skill standards for different jobs, the organization has helped companies create internal job ladders. These ladders benefit workers regardless of whether they participated in the training programs, because they now have a clear path toward advancement within the firm. And, given that many firms have adopted these standards, workers throughout the local industry may benefit. In addition, the organization's interventions have helped firms to employ their human resource assets more effectively and implement more efficient procedures that lead to greater stability and job retention in the Chicago area.

[1] Peggy Clark and Steven L. Dawson, *Jobs and the Urban Poor: Privately Initiated Sectoral Strategies*, (Washington, D.C.: The Aspen Institute, 1995).

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## Section Outlines

**Section 1:** An overview of the Jane Addams Resource Corporation's programs and the important historical events that led to its current form. This section also discusses the significant details of its sectoral strategies and some of the key relationships the organization has formed to further its objectives.

**Section 2:** A discussion of the metalworking industry. Particular attention is given to skill attributes of metalworkers and how such workers advance in the industry. The competitive pressures affecting metalworking firms, and their effect on future employment opportunities, also are discussed.

**Section 3:** A look at how the organization puts its sectoral approach into practice. The relationships it has built with employers and key industry groups are described, as well as how it has gained a high degree of expertise on skills standards and training methods appropriate to workers in entry-level positions. Also covered is how the agency has leveraged its reputation to encourage public and private sector parties to increase training opportunities for low-skilled workers.

**Section 4:** A detailed description of training programs. This section covers the content and approach of the organization's metalworking skills training courses as well as the methods of outreach, recruitment and post-training job placement assistance.

**Section 5:** A discussion of training program costs and their outcomes. The section covers both the organization's internal system for assessing performance as well as performance indicators required by the organization's funding sources.

**Section 6:** A review of the lessons learned by the agency and the strategic challenges it now faces. These points are drawn from discussions with organization staff as well as from interviews with individuals outside the organization.

*"The Jane Addams Resource Corporation builds healthy communities through workforce, economic and human development. It is rooted in the North Center, Lakeview, Lincoln Square, Edgewater and Uptown communities, and serves the Chicagoland area through a strategic mix of industrial retention, training and educational initiatives."*

— Mission Statement, adopted Sept. 28, 1998

Founded in 1985 as a community development organization, the Jane Addams Resource Corporation has developed an integrated response to problems linked to the industrial decline of the 1980s, the eroding tax base on Chicago's north side and the weakening of community support systems. It has focused on residents' needs through educational programs for youth and adults, and on the businesses' needs with multi-faceted efforts in technical assistance, advocacy and workforce development. Embedded in this broad strategy is the group's sectoral approach to workforce development in the metalworking industry, which evolved from the organization's early community organizing efforts in the Ravenswood Industrial Corridor, and has grown in response to market demand.

## History

Originally part of the renowned Jane Addams Hull House, the organization's first program in 1985 was an alternative school for at-risk youth. However early on, a survey of the businesses in Northeast Chicago designed to identify job opportunities for youth led the organization to expand its target group to include local manufacturing firms. Its role as an agent of community economic development grew in response to survival pressures facing small local firms when larger companies, which had been a major source of contracts, closed or left the city. By 1987, it had initiated technical assistance to local firms in Ravenswood and Lakeview that included brokering services to municipal programs, low-interest loans and marketing assistance. Michael Buccitelli, then the director of the agency's emerging Targeted Development Program (he is now executive director of the agency), organized a flexible manufacturing network of local metalworking firms, known as the Metalworking

Consortium, to facilitate marketing relationships. During this time, the organization served about 50 firms concentrated in Ravenswood and Lakeview. At the same time, the organization initiated evening adult literacy classes to address the problems of illiteracy in its target communities. These classes have expanded over the years into the current Adult Learners Program services.

The Jane Addams Resource Corporation's close contact with metalworking in the late 1980s unleashed a number of other efforts that evolved into concrete programs in industrial retention and workforce development. The agency spearheaded a movement to preserve manufacturing space in the community against the threat of condominium conversion. In the process, it built its political connections and ability to organize. In 1991, the organization purchased and rehabilitated its first manufacturing facility in the Ravenswood Corridor to maintain quality industrial space – and preserve jobs – in the community. Today it owns three buildings, making it the second-largest landlord and a significant stakeholder in the Ravenswood Corridor.

## Jane Addams Resource Corporation's Geographic Service Areas

**Ravenswood Industrial Corridor:** A narrow band of commercial and industrial buildings that follows a rail line, it is 20 blocks long and roughly four blocks wide. This area is the focus of the group's real estate development and industrial retention efforts, and houses the agency's offices and training center.

**North Central Chicago:** Most of the organization's programs serve this area, made up of the North Center, Lakeview, Lincoln Square, Edgewater and Uptown neighborhoods. The Ravenswood Corridor is located within the Lakeview neighborhood.

**Chicagoland area:** This refers to metropolitan Chicago. Out of necessity, the group has expanded its training and technical assistance to metalworking firms throughout the metropolitan area, including the suburbs.



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By 1990, the organization had identified the workforce development needs of these small firms as its next frontier. Companies needed to respond to changing technologies with new workers and new skills. Then-Executive Director Mary LaPorte secured a subcontract of $25,000 from Productive Chicago, a City Colleges of Chicago program designed to create bridge programs to reach out to populations who had not traditionally been well served. It was hoped that these programs would blend adult literacy and vocational education. This innovative collaboration, bold for its marriage of community-based organizations with a large, bureaucratic city college system and local manufacturers, set out to test and market the new curriculum they developed. Given its industry and community connections, the Jane Addams Resource Corporation was in an excellent position to recruit and train hard-to-reach groups such as immigrants and non-English speaking employed workers, preparing them to be students in a variety of degree programs offered by the established adult education system.

By the summer of 1992, the collaboration failed. Staff felt strongly about the need for training, and worked to find alternative support. However, having lost faith in the ability of the public adult education system to effectively serve the needs of low-skill workers, then-Training Director Anita Flores[1] came to believe that the organization would need to build a stand-alone, alternative trade school. This institution would offer certificates that workers could use to convince their employers to promote them, but it would lack the degree-granting powers of a community college. Mary LaPorte identified an alternative funding source, the state of Illinois' Prairie State 2000 Authority. In addition, Michael Buccitelli convinced the board of the importance of developing an incumbent worker-training program, a difficult task given that at the time, there were no role models for such a program. Success with Prairie State 2000 and the organization's board enabled Jane Addams Resource Corporation to continue offering training to metalworking employees.

Having already established a computer-training lab for community and worker training, the organization launched classes in basic math, blueprint reading and AutoCAD, and trained almost 100 workers in 1992-93. By listening to company needs, the group

[1] Anita Flores is now associate director. Margaret Haywood is director of training programs and Guy Loudon coordinates the Metalworking Skills Training Program.

found itself on the cutting edge. For example, it was among the first institutions to provide training in AutoCAD, the software program being adopted by its client companies, while formal post-secondary institutions focused on higher-end computer programs under the erroneous assumption that AutoCAD was too simplistic. The organization also knew that to serve its target population it would have to offer technical classes in Spanish (classes in Polish and Bosnian came later). And, it would have to provide hands-on experience with setting up and operating machines.

**JARC has built its reputation within the industry by reaching out to a broader market and working with industry associations.**

But to further differentiate the agency from other training providers offering math and blueprint reading, Anita Flores returned to the metalworking firms in the Ravenswood Corridor. She looked for common characteristics of client companies: They were small, employing 25 to 200 workers, and many were involved in the metalworking sector. She identified training in die setting as a possible niche on which to build, as this was not offered anywhere in Illinois. She convened a group of companies to help develop a die setting curriculum, and began offering the course at alternating factory locations with two or three workers from each of three companies.

Access to machines for training purposes posed a problem. Despite their interest in the new die setting course, these small firms could not afford to take their equipment out of production and dedicate it to training. Thus the organization needed its own technical training center. It sought and found two partners – a die setting trainer and a private metalworking firm — with similar interests and ability to invest in such a facility. Additional resources and support were needed, however, and Michael Buccitelli again went to the board, not only convincing it of the need for a training facility, but also persuading the board's real estate committee to underwrite one-third of the rent for the new center. In 1996, the group's Training Center for the Metalworking Trades opened in the Ravenswood Corridor. Building on its die-setting niche, the organization established the first U.S. Department of Labor-registered die setting apprenticeship program in the country, combining classroom training with on-the-job supervision.

In 1996, the organization became independent from Hull House, a move that facilitated its growth. From 1995 to 1999, the

Metalworking Skills Training Program increased its base of client companies and expanded its course offerings. Market demand led the group beyond the Ravenswood Corridor to work with firms in the suburbs and to develop new courses in areas such as Statistical Process Control and Computer Numerical Control. The agency built its reputation within the industry by reaching out to a broader market and working with industry associations. Its 1996 exhibit at the annual conference of the Precision Metalworking Association, and a 1997 award as the educational partner of a company named as the most progressive in its approach to employee training, helped raise the organization's profile within the industry and helped provide financial support to its market-driven, sectoral training program.

In 1998, the resources of the successful Metalworking Skills Training Program for employed workers were applied to another target group, the unemployed. The Opportunities in Metalworking Program trains the unemployed for entry-level positions in the sector, largely in the same companies the organization serves with its Metalworking Skills Training Program. The organization completed the circle of its workforce development strategy by providing employed workers with the skills required to advance, and by supplying trained, entry-level workers to take their place.

## Summary Profile of Programs

From 1993 to 1998, the organization experienced dramatic growth. The overall budget grew from $569,000 in 1995 to $1.35 million in 1999; staff grew from 15 in 1995 to 26 in 1999. Its eight programs are summarized below.

### Jane Addams Resource Corporation: Summary of Programs

- **The Metalworking Skills Training Program** offers a range of work-related literacy and technical training for low-skilled incumbent workers. It also operates the Training Center for the Metalworking Trades and the AutoCAD and Computer Numerical Control training out of this program.
- **The Opportunities in Metalworking Program** provides pre-employment and vocational skills training in metalworking for the unemployed, including refugees and public assistance recipients.

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The two metalworking programs form the bedrock of the organization's sectoral strategy. The following non-sectoral programs play a complementary role to the sectoral efforts and further the group's broader mission, which is community development.

JARC has a sectoral component and a non-sectoral component to its overall community development strategy, with the non-sectoral programs playing a complementary role to the sectoral efforts.

- **The Targeted Development Program** provides technical assistance and support services to diverse businesses and manufacturers in Northeast Chicago. It incorporates an industry group, the Ravenswood Model Industrial Corridors Project, which promotes local industrial retention through infrastructure planning and improvements.
- **The Computer Training Lab** offers a full range of computer training workshops ranging from word processing to Internet and Web page design. All organization programs use this lab.
- **The Jane Addams Alternative High School** offers an educational option for at-risk youth who cannot stay in public school. This is a diploma-granting school.
- **The Adult Learners Program** uses volunteer tutors to teach literacy skills, life skills, writing workshops and pre-GED preparation to adult learners in the community.
- **The Partnerships Program** links public and private entities, including local schools, municipal government, private firms and other nonprofit agencies, to enhance school-to-work opportunities for at-risk high school youth, and to provide career counseling and job placement. It also leads the organization's policy work in the areas of education-to-careers, industrial retention and workforce development.
- **The Real Estate Development Project** manages the purchase, rehabilitation and rental of three distinct production facilities totaling more than 100,000 square feet in the Ravenswood Corridor. These spaces house 15 business tenants ranging from Internet communications to light manufacturing firms.



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These programs focus on the organization's differing geographic service areas, described above. The Targeted Development Program focuses heavily on the Ravenswood Industrial Corridor. The Metalworking Skills Training Program works with employers and workers throughout the metropolitan region. The majority of programs serve the North Center, Lakeview, Lincoln Square, Edgewater and Uptown neighborhoods of North Central Chicago.

As the program summary indicates, the organization is much broader than its sectoral workforce development efforts, which are the focus of this case study. Its mission is community development in a broad sense. The metalworking training is the heart of the sectoral effort. Other programs, such as the Targeted Development Program, also play a role in retaining and stabilizing metalworking firms, though metalworking is not the sole focus. Similarly, other education programs play a complementary role to the educational development of metalworkers. Thus the organization has a sectoral component and a non-sectoral component to its overall community development strategy, and the non-sectoral programs can play a complementary role to the sectoral efforts. The range of programs, both sectoral and non-sectoral, reflects the group's mission to foster both economic and human development.

## Sectoral Strategy

The sectoral strategy involves work with both employers and employees, helping workers develop career paths and business owners improve operating efficiency. The training programs, serving both employed workers and their employers, form the core of the sectoral approach to workforce development. These programs seek to provide workers with a clear path toward advancement that did not previously exist, and employers with more efficient methods of meeting their skills needs, particularly at higher levels. Employers also improve their worker retention and, therefore, reduce costs. This is a win-win solution. To date, the organization has trained 900 workers from 50 different companies either at its training center or on-site.

The Jane Addams Resource Corporation needs to market its incumbent worker training to companies because the training generally requires that employees have time away from the job. As most

of these firms have never invested in training for production workers, the organization makes every effort to remove any and all barriers that might hinder a company's decision to do so. A major disincentive to provide training in the past has been cost, but the organization has accessed state funds that cover much of the direct training costs for companies. Consequently, in many cases the companies pay little or no direct tuition, although they must still pay workers while they participate in the training. In addition, the group processes the reimbursement paperwork for each worker trained, making for hassle-free participation.

**Acute shortages of skilled labor are motivating employers to develop the skills they need in the workers they already have.**

The group goes beyond a simple contract to conduct classes for employees at client companies, and also works with companies in the following ways:

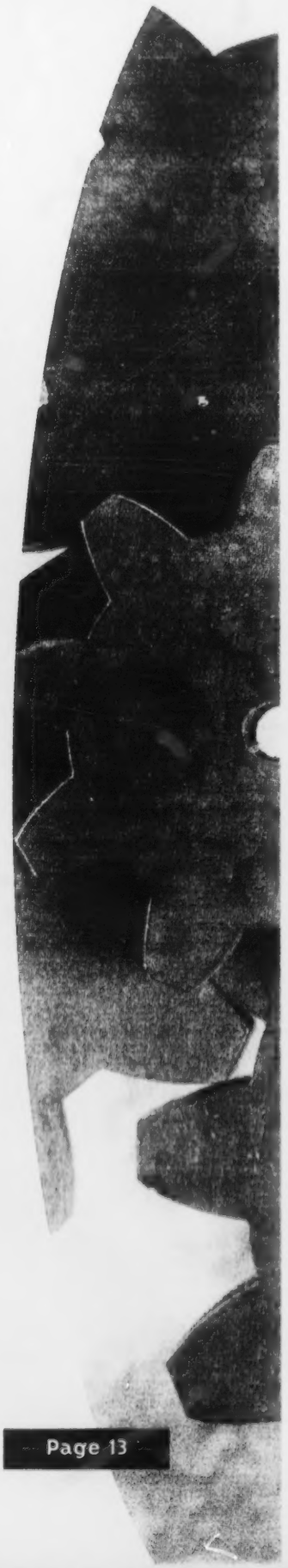
- Helps the company outline a career path and career progression for each type of worker.
- Proposes customized training for the company and a training schedule that includes a progression of courses.
- Tests workers before and after each course, and reports on the progress of each class. (Individual student test scores are kept confidential to encourage an open learning environment.)
- Recommends next steps for the workers and the company, and outlines measures that enable workers to apply their new skills, maintaining workers' enthusiasm for training, and the company's investment in it.
- With enough time and exposure to the shop floor, trainers will provide technical assistance regarding production and employee relations, and may make suggestions for improving safety.

The organization makes it so easy for the company that it is difficult for the firm to say no. Almost every call from a company has resulted in training. Anita Flores reports she is now able to put together an annual training plan based on company commitments well in advance. Several factors, she believes, have converged to create a very positive working environment. Companies are seeing the benefits of training, and a strong economy means they can afford the costs. In addition, acute shortages of skilled labor are motivating employers to develop the skills they need in the workers they already have.

Metalworking training is the heart of JARC's sectoral strategy.

Other programs, while not explicitly sectoral, complement the human and business development aspects of the sectoral strategy. The Partnerships Program is actively involved in a number of collaborative efforts among businesses, schools and the city of Chicago to enhance school-to-work opportunities for youth, as well as career counseling and placement services to disadvantaged residents. In this context the group became involved in a local high school that developed a metalworking vocational track for its students, helping to facilitate industry contacts and job placements for students as well as directly providing training to some students.

The Targeted Development Program generated the organization's first links to the metalworking sector, since many metalworking firms had been located in the Ravenswood Corridor. Although the businesses in the corridor have now diversified to include specialty apparel, Internet communications, graphic design and woodworking firms, the program goal remains retaining and expanding the pool of good jobs available to community residents. For example, as co-administrator of the Ravenswood Model Industrial Corridor Plan, the agency has spearheaded efforts to improve infrastructure, such as raising the railroad viaducts in the neighborhood to permit truck passage. This was critical to the ship-



ping and delivery of products. The program also offers seminars on topics of interest to small businesses and provides other services. As such, these efforts often support the sectoral strategy by creating a positive operating environment for manufacturing firms in the area.

Getting viaducts raised to permit truck passage is just one infrastructure improvement pushed by JARC.

Anchoring the northwestern corner of the great industrial heartland of the United States, Chicago has been home to a vast complex of metalworking firms through most of the 20th century. At its height, the metalworking sector comprised more than half of the manufacturing jobs in the metropolitan area.[3] Of the 134,000 metalworking jobs in Illinois today, roughly two-thirds are in metropolitan Chicago.[4] The Chicago metalworking industry is a dense network of primarily small, highly flexible job shops capable of manufacturing virtually anything out of metal.

For 50 years beginning in the 1920s, Chicago's metalworking sector was a stable if not growing industry, largely unionized and organized by a trade association that represented firm owners. However in the 1970s, when escalating inflation and foreign competition began to make serious inroads to U.S. markets for metal products, medium- and large-sized firms downsized, relocated or simply went out of business. Many remaining smaller firms moved to the suburbs. In short, metalworking employment in Cook County, where Chicago is located, has dropped 60 percent since 1966.[5]

With the departure of large-scale metalworking firms during the past three decades, the average plant size has declined from 40 to 19 employees, and union membership has plummeted.[6] To stay competitive, plant managers sought to reduce labor costs and began filling high-paying, high-skilled metalworking positions with low-skill immigrant workers. New, inexperienced workers are teamed with experienced workers to learn the fundamentals of metalworking. But because of the lack of further training, along with limited education and English language capability, the new workers often require more supervision than did their predecessors, and their advancement opportunities are limited. Skilled positions still seem to be held primarily by white males, and entry-level, lower-skill jobs tend to be filled by minorities and women. Based on 1990 U.S. Census Bureau data for metropolitan Chicago, of the nearly 23,000 precision metalworkers in the metro region, 76 percent are male and white. On the other hand, African Americans, Hispanics and women accounted for roughly 63 percent of the 55,000 punch press, fabrication and related operator positions.[7]

[3] Illinois Department of Employment Security, 1960-1997.
[4] Illinois Department of Employment Security, 1996.
[5] Lynn McCormick, "A Life Cycle Model of Manufacturing Networks and Chicago's Metalworking Industry," unpublished dissertation, Massachusetts Institute of Technology, Cambridge, Mass., 1996.
[6] U.S. Department of Commerce, "County Business Patterns," various years, (http://fisher.lib.virginia.edu/cbp/cbp.html).
[7] U.S. Department of Commerce, Bureau of the Census, "1990 Detailed Occupation by Race, Hispanic Origin and Sex," (http://tier2.censUS.gov/CGI-WIN/EEO/EEODATA.EXE).

## Defining Metalworking Occupations

In general, workers in the metalworking industry can be divided into two groups — those who set up machines for operation and those who operate or tend the machines that cut and form all types of metal parts. While there is significant variety in the machines used to cut, bend and shape metal, workers tend to perform similar tasks. For operators, these tasks are repetitive and usually fairly simple, which means that they may oversee more than one machine at a time. For set-up workers, adjusting machinery for production changes involves more varied tasks and responsibility, as an incorrect setting can cause costly production errors, damage machinery or cause injuries. Because the set-up process requires an understanding of the entire production process, setters usually have more training and are more highly skilled than those who simply operate or tend machinery. As new automation simplifies the set-up process, however, less-skilled workers are also increasingly able to set up machines for operation.

**As the workplace becomes more complex... employers are seeking workers with above-average mechanical aptitude and strong basic skills.**

### Skill Attributes of the Job

Skills in the metalworking industry are developed on the job, as the worker is exposed to progressively more sophisticated tasks. The length of time required to master tasks is related to the complexity of the machine and the job task being performed. Some tasks take as little as a few weeks to achieve proficiency, while others may require months of repetitive effort. It can take years to acquire the skills needed to set up and adjust machines during operation. In some cases employers provide structured training, beginning with simple operations such as material handling and eventually progressing to machine operation. In the absence of training, workers spend considerable time mastering the process until they are considered capable of operating a machine with limited oversight and supervision.

According to the U.S. Bureau of Labor Statistics, "set-up operators often need a thorough knowledge of the machinery and of the products being produced. They may study blueprints, plan the sequence of work, make the first production run and determine which adjustments need to be made. Strong analytical abilities are particularly important to perform this job."[5] In the past, companies

[5] U.S. Employment and Training Administration, *Dictionary of Occupational Titles*. (Washington, D.C.: U.S. Government Printing Office, 1991).

— particularly large corporations — operated in-house training programs to develop and maintain a base of skilled workers with such advanced skills. Today, a growing number of companies send or encourage their workers to seek advanced training through vocational programs offered by local school districts or private training providers.

Visits with firms confirmed the need for advanced training, and highlighted the ongoing shortage of machine operators with computer skills. These visits emphasized the rising skill standards required in the industry. Workers have had to acquire a new set of skills as machine tools have become more complex and computers increasingly direct the operation of production machinery. On-the-job training, however, remains the primary mode of skill acquisition, even in the context of more sophisticated machines. Training length depends on a worker's aptitude with computers and previous experience in the machining sector. More advanced operations usually require that the worker learn some level of computer programming. Computer programming skills generally require off-the-job training in a classroom setting. As the workplace itself becomes more complex and quality standards grow, employers are seeking workers with above-average mechanical aptitude and strong basic skills. Career advancement is increasingly tied to the ability to perform complex activities and to acquire new skills in accordance with changes in technology.

### How Metalworkers Move From Job to Job

Getting a job in the machining and metalworking industries historically followed well-worn routes. Because of the high concentration of metalworking firms in Chicago, workers moved in and out of firms through neighborhood and familial contacts. In Chicago, the high proportion of Eastern European immigrants working in the industry reinforced the pattern of recruitment based on kinship ties and extended friendships. In several interviews, employers described how they relied heavily on existing workers to recruit new hires, and that it was not unusual to have a number of family members working in the same firm. However, the past mechanisms of recruiting through neighborhood networks and at the local high school are declining in effectiveness as the children of metalworkers shun manufacturing employment for white-collar jobs. Hispanics, African Americans and women are replacing their

older European immigrant counterparts. However, the skills and educational backgrounds of these new workers do not equal those of the workers they are replacing.

Once in the industry, mobility generally depends on skill acquisition and networks. Workers move from job to job within the firm depending on competency and willingness to learn. Neither of these two characteristics necessarily guarantees mobility, however. While movement among entry-level jobs is quite fluid, moving to higher-paying, more technical jobs usually requires persistence, English literacy and a demonstrated mechanical aptitude. Even after acquiring such skills, workers are not always promoted into new positions because many employers are unsystematic in advancing employees.

**Employers have been forced to offer higher wages and better working conditions, including benefits, to attract and maintain a stable workforce as the labor market tightened.**

Not surprising, entry- and low-level metalworkers change jobs relatively frequently because of small differences in wages or improved working conditions. Employers frequently acknowledged the cost of turnover, but until relatively recently few seemed willing to make improvements necessary to retain employees over the long term. Employers have been forced to offer higher wages and better working conditions, including benefits, to attract and maintain a stable workforce as the labor market tightened.

## Wage Levels

Wage levels in the industry are directly tied to skills. In 1999, median pay for machine operators in metropolitan Chicago was $11.64 per hour, with the bottom 10 percent of workers earning $6.03 per hour or less and the top 10 percent earning $19.77 per hour or more.[9] Higher-skilled occupations, however, such as tool and die makers or machinists, earned much more. Tool and die makers had median hourly wages of $26.10, with the bottom 10 percent earning $18.10 per hour or less and the top 10 percent earning $29.20 or more. Comparable figures for machinists are $20.71 per hour, $17.50 per hour and $28.25 per hour, respectively.[10]

Much of the variation in wages also can be attributed to unionization. National statistics suggest unionized firms have wage levels as much as 30 percent higher than non-union firms.[11] Historically, Chicago metalworking facilities were unionized. During the past 30 years, however, the number of union shops has

[9] U.S. Department of Labor, Bureau of Labor Statistics, "Chicago-Gary-Kenosha, IL-IN-WI National Compensation Survey October 1999," Bulletin 3100-76, (August 2000): 50.
[10] Ibid.
[11] International Machinists Association, "The Union Advantage," *The Economic Trends*. (http://www.jamaw.org).

decreased, especially as the number of large firms has declined and as non-European immigrant workers willing to accept lower wages have become a larger share of the workforce.

## Competitive Pressures on Chicago's Metalworking Firms

Among firms that the Jane Addams Resource Corporation serves, the competitive environment is changing rapidly. The organization serves firms at both the high and low ends of the market for metal products. The larger firms, including original equipment manufacturers (OEMs), operate in markets where cost and quality competition is intense. Changes in the market for a firm's product, rising standards of performance and continuous pressure to reduce costs on a regular basis are forcing firms to upgrade their labor force simply to remain competitive.

At the other end of the spectrum, the organization also serves firms producing highly variable products where the size and complexity of runs depend on the order. These "job shops" take requirements from purchasing firms and fabricate parts and whole products according to customer specifications. The degree of parts specificity ranges from concepts to blueprints. Manufacturing operations can include everything from metal cutting, stamping, molding or finishing, including specialty surfaces and plating.

Job shops are facing intense competition from foreign suppliers. During the past five years, U.S. imports of machines and machined parts have increased threefold. Since 1989, U.S. imports of automotive parts and finished products have increased 1,000 percent.[12] Competition is particularly intense from Mexican and Chinese manufacturers. U.S. purchasers of metal goods requiring quick turnaround are finding it increasingly attractive to buy from Mexican suppliers. Products with longer turnarounds are now being sourced from China – sometimes at half the cost.

For many of the organization's customers, changes occurring in the automobile industry present unprecedented problems for long-term planning. According to estimates by the Industrial Performance Center at the Massachusetts Institute of Technology, the global automobile industry is suffering from massive overcapacity.[13] High-income countries' markets are saturated, and the Asian

[12] T. Sturgeon and R. Florida, "The World that Changed the Machine: Globalization and Jobs in the Automotive Industry," report to the Alfred P. Sloan Foundation, (Cambridge, Mass: MIT International Motor Vehicle Program, 1999).
[13] Ibid.

### The Cost Advantage of Chinese Manufacturers

As one small manufacturer of metal lighting equipment reported:

*"We used to produce a lamp base that cost us $11 to fabricate. The company we used to make it for has taken this work to China, where the entire product can be fabricated and assembled — including the lampshade, wiring and final packaging — all for $11!*

*"I have been asked by customers to rework an imported product that has flaws. But sometimes the customer just scraps the entire shipment and buys another one, because it's cheaper than paying to have the flaws of the original shipment reworked. No one can beat that kind of cost advantage!"*

**Job shops are facing intense competition from foreign suppliers.**

financial crisis has drastically reduced overall demand for automobiles. High-income market saturation has forced the major car producers to expand globally at a rapid rate in an attempt to establish a presence in new markets such as Vietnam, Eastern Europe and other parts of Asia. To cope with rising competition and growing cost pressures associated with over-expansion, auto producers, particularly in the United States, are reducing their own parts fabrication capacity and contracting out to lower-cost, often non-union parts suppliers. At the same time, they are increasingly requiring parts suppliers to establish capacity near their new overseas assembly plants. This is reducing the need for parts exports while increasing the potential source of supply of imports. A recent study by the MIT International Motor Vehicle Program names a number of Chicago firms that had established production capacity adjacent to new manufacturing assembly plants outside the United States.[14] Chicago-based firms are increasingly facing the need to follow customers abroad simply to stay in the game.

Passage of the North American Free Trade Agreement (NAFTA) in the early 1990s and two major devaluations of the Mexican peso in seven years have made Mexico a very low-cost alternative location for U.S. manufacturers. Increasingly, companies are finding that customers want products produced on a just-in-time basis, thereby reducing the need to hold inventory. Just-in-time



[14] The Motorola Corporation operates several electronic assembly plants in Mexico.



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requires time in transit of less than a day for many applications. It also provides viable solutions for stock-outs when unanticipated demand depletes inventory.

China's move to join the World Trade Organization will present new competitive pressures for supplier firms. The unlimited pool of semi-skilled labor effectively translates into production cost estimates of one-tenth those found in the United States. Companies with production schedules with long lead times increasingly see China as a location of choice. In the past, China largely produced low-value goods. Yet the technical capacity of China's factories has dramatically improved to the point where one Chicago metalworking firm indicated, "... In some cases product is coming in from China of equal or higher quality than we can produce here in the U.S."

## The Effect of Technological Change on Metalworkers

Technological change and labor saving activities continue to have profound effects on the size and skill composition of the labor force in the metalworking industry. Competition is requiring firms to automate to increase productivity and quality. Flexible manufacturing cells, where an individual operates more than one machine, are the most common way firms are achieving greater efficiencies. However, these cells require that machine operators have higher levels of skill. Advances in flexible manufacturing cell design also are decreasing the need for material handlers, as semi-robotic devices assume the tasks of loading and unloading manufactured items from production machines.

However, for many firms, particularly smaller ones, the initial cost of high-tech specialized equipment exceeds the short-term return required to make such an investment feasible. An alternative would be to reorganize the production floor. For example, one medium-sized manufacturer indicated that a single flexible manufacturing cell would cost $1 million. In lieu of outfitting the shop entirely with new equipment, the firm was rearranging work practices and combining formerly separate tasks of set-up and machine operation to raise productivity. The success of this reorganization hinged on the firm's workers being able to take on more and differ-

ent tasks, which, in turn, required that management make a significant investment to retrain its workforce.

A corollary development that is raising standards and skills is the growing number of firms seeking ISO 9000 certification. International Standards Organization certification is a process whereby a firm evaluates all facets of its business and brings workplace practices into conformance with international performance and reporting standards. Many larger customers of the metalworking industry, such as automobile manufacturers, require suppliers to be ISO certified. As part of ISO certification, workers must undergo a set number of weeks of training annually. Employers are taking a closer look at training standards, and they are demanding higher quality and more effective training to maintain their certification. Moreover, as companies upgrade their workforces, recruiting higher-skilled workers is becoming a more exacting and expensive process. Increasingly it is more cost-effective to cultivate promising low-skilled workers and promote them to more technical and responsible positions. However, this requires a commitment to the training of lower-level workers, and in many cases, a change in management philosophy and personnel practices.

**The Tooling & Manufacturing Association estimates that openings for precision production jobs in Illinois will run around 2,200 per year during the next five years...**

## Employment Outlook

According to government statistics and industry trade associations, changes in employment levels in the metalworking industry will vary over the next six to 10 years, depending on the skill content of the job. The industry sectors characterized by a high percentage of low-skill jobs are more likely to succumb to the effects of international competition. It is expected that firms will experience significant reorganization, as demands from the market require more computer-assisted fabrication activities. However, total job gains are expected in the industry overall as the current workforce ages and generates a continuous stream of openings well into the next century. The Tooling & Manufacturing Association estimates that openings for precision production jobs in Illinois will run around 2,200 per year during the next five years, with most of the openings occurring in Chicago.[15]

In large part, the growth of employment in the metalworking industry is a function of final market demand. The past 10 years



[15] Tooling & Machining Association, "Labor Market Information: Precision Metalworking & Machine Set-up & Operator-Machine Assembly," (http://www.tmanet.com/career.labor.htm).

have witnessed growth in the national economy and, therefore, increased demand for metal parts. At the same time, plastics continue to replace metal as the material of choice in a wide number of components and products. Given the lower material and fabrication costs of plastic, this trend is expected to continue into the future. Furthermore, metalworking firms in lower-cost regions within the United States and around the world have greatly increased competition against older, metropolitan-based metalworking firms. These pressures are likely to continue and adversely affect employment opportunities for some metalworkers.

As metalworking firms meet rising competitive challenges, they will continue to implement new shop floor arrangements that require problem solving and teamwork. Managers will be looking for workers with a thorough background in machine operations, exposure to a variety of machines and a good working knowledge of the properties of metals and plastics. Workers with a solid foundation in basic mathematics and reading, good communication skills and the ability and willingness to learn will be best able to adjust to this changing work environment.

In response to a decline in the metal trades industries of the Ravenswood neighborhood of North Chicago, the organization established a series of programs to provide training, economic development planning and school-to-work assistance for residents of the surrounding area. It has developed career ladders within the metalworking industry that show both employers and employees how workers can progress into higher-paying metalworking jobs through concentrated skills training. These steadily progressing workers enhance the productivity of businesses, thereby retaining metalworking jobs in the greater Chicago area. The organization trains workers for careers — not for a single job — and recognizes that educating employers about the value of lifelong learning and continuous training is integral to achieving both economic development and retention goals.

Employers work as partners to define training objectives and to develop the content of courses, because they know their business best.

*"In an environment of increasing competition, greater demands for quality but decreasing availability of highly skilled employees, the Jane Addams Resource Corporation meets multiple needs. They serve the community, the employees and business. They were a major factor in our decision to keep punch press operations in Chicago."*

— Donald Koop, director of human resources,
Parkview Metal Products

## Creating an Employer Commitment to Workforce Development

The Jane Addams Resource Corporation pursues multiple strategies to establish working relationships with employers in the metalworking sector. For example, training programs are designed in collaboration with employers. This participation extends significantly beyond the establishment of roundtables or advisory boards, the usual mechanisms training organizations use to solicit employer involvement. Employers work as partners to define training objectives and to develop the content of courses, because they know their business best. That's why trainers adapt their programs to the manufacturing practices of individual firms. Acting as both a resource and a facilitator, the organization helps a firm determine the key skill competencies its employees need to be successful.

Through concentrated skills training, workers can progress into higher paying metalworking jobs.

The initial goal is for the client firm to develop a commitment to provide training, particularly for entry-level and lower-skilled workers. Once the organization gets its foot in the door, it continues to work with an employer over time to demonstrate the value of improving workplace skills. Further, it works with firms on establishing recognizable job ladders and pathways for low-level workers to advance. For example, one tool it uses with employers outlines the specific skills needed to advance from a Level C (entry-level) punch press operator to a Level B (somewhat skilled) punch press operator, to a Level A punch press operator, and so on, up to Lead Die Setter. The tool also points out places in this career progression where the worker might take another path and pursue work in areas such as maintenance or quality control. For firms that have traditionally sought to hire skills rather than develop them from within, this kind of guide for staff development is tremendously helpful. Firms have found that training intervention benefits them by increasing productivity, reducing employee turnover and creating an internal source of replacements for more skilled positions.

While the organization attempts to work with employers and workers by identifying workforce problems and developing training solutions that meet a firm's particular needs, trainers also can provide on-site practical technical assistance. During an initial walk-through of the production floor, instructors will note safety hazards, inefficient machinery set-up or bottlenecks in material handling, and make suggestions to solve the problems. Once training is under way, the trainers will help firms maximize the impact of the instruction by noting specific personnel issues, such as uncooperative floor supervisors who may be keeping the trainees from apply-

ing their training on the job. Solving minor production problems goes a long way toward establishing the organization's trainers as "guys who know what they're talking about," as one plant manager reported.

## Balancing Employer and Employee Interests

In addition to benefiting employers, training also helps low-income workers find a way to advance. The establishment of well-defined competencies for specific positions provides lower-level workers with a clear map toward higher-paying jobs. By encouraging firms to invest in training, the organization is helping to ensure that workers have access to the resources that will allow them to move up the career ladder. The overall productivity and profitability improvements that firms experience because of these interventions help keep the firms in the Chicago area, providing workers with greater job security.

**The establishment of well-defined competencies for specific positions provides lower-level workers with a clear map toward higher-paying jobs.**

Although training is designed to benefit both companies and workers, at times the interests of employees and employers conflict. A recent case illustrates the extent to which the agency will defend the interests of the workers while seeking a solution that benefits the company.

With the goal of improving the quality of its products, a significant client — one of the largest employers in the community — developed an extensive employee training program. This program requires that all workers take two classes per year to qualify for wage increases and promotions. In addition to its in-house training, the company contracted with the agency to provide introductory training — a customized version of the Metalworking Skills I course — to those who need remedial skill building before participating in the company program. Following its policy for all clients, at the end of each course, the organization provides the company with a written progress report on each student, but does not reveal individual test scores. Over time, experience has shown that an estimated 80 percent of these students succeed in this course, while the remaining 20 percent will continue to need help.

Tensions arose when the organization refused to comply with a company request to provide individual test scores, arguing

that low scores should not be used to punish workers who otherwise perform well in their jobs. Furthermore, removing anonymity would undermine workers' trust and willingness to expose their learning difficulties and get the help they need. In the end, the organization and the company worked out a compromise. While maintaining anonymity of test scores, the agency will offer individual tutoring to those who fail the course. The company agreed to count this tutoring as one of the two required courses, and pay the workers for the time they spend on it.

This story highlights another issue. While the agency's success is attributed to its ability to deliver quality training services, it is also partly dependent on the relationship it develops with the human resources staff at each client company. In the case of the company in this example, the human resources director's commitment to training and to his relationship with the Jane Addams Resource Corporation facilitated the successful compromise. Yet the agency is vulnerable to changes in a client company's staff. For example, one of its active clients in 1997 became a very sporadic client in 1998. When the human resources director left his position, training became a lower priority for the company. However, the company then went through some internal restructuring and has now contacted the organization about resuming its aggressive training strategy.

## Engaging Employers in Collaborative Work

In addition to working with firms individually, the agency convenes employers in a number of settings to discuss the workforce and encourage collaboration. Within the Ravenswood community, it facilitated networks of local employers who met on a monthly basis to discuss business development issues. These meetings provided forums for the participating firms to talk about common problems in the industrial corridor, forge business relationships for joint activities and share information about public business assistance programs.

The organization also has provided a critical leadership role for more industry-focused collaborations. For example, it regularly organizes groups of employers to undertake a variety of applied

research projects on the metalworking industry. These efforts have engaged employers in various local and state workforce policy initiatives. Because industry's involvement renders the findings more relevant, the organization has produced products that are more useful to metalworking employers, and its reputation in the industry has risen.

## Developing and Using Industry Knowledge

JARC has developed a deep knowledge of metalworking to become a potent change agent in the industry.

Historically, most community-based training programs have focused on training from the perspective of the unemployed or disadvantaged worker. These efforts fail to understand and address the strategic problems employers face in today's labor market. In contrast, the organization has developed a deep knowledge of metalworking to become a potent change agent in the industry.

Its knowledge of metalworking is rooted in the considerable experience and acumen of its technical instructors. Each brings a wealth of real-world experience that enables them to be highly effective in relating to both workers and employers. The organization has built on this considerable knowledge base through a number of previous and ongoing labor market research projects, most of which have focused on profiling metalworking occupations in terms of the skill requirements of employers and evaluating the impact of training.[16] These projects are not simply farmed out to consultants, they are conducted internally by the instructors and training program directors in collaboration with concerned employers. Tackling sector analysis in-house with line staff deepens the entire organization's understanding of the metalworking industry and makes it possible for that knowledge to be applied to a range of everyday situations. It also ensures that all staff members fully understand and are committed to the organization's workforce objectives.

The agency uses the findings and relationships gained through its labor market research efforts to strategically develop new initiatives. In the case of its work in occupational profiling, the analysis revealed weaknesses in literacy and technical skills in the existing workforce that fueled the participating firms' commitment to more training. In response, it designed and offered new courses

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[16] More details on the agency's self-evaluation are found in the Critical Outcomes and Costs of the Sectoral Strategy section, beginning on Page 49.

such as Trigonometry for Trades, launched the Technical Training Center and developed the Die Setter Apprenticeship Program.

## Jane Addams Resource Corporation's Labor Market Research: Occupational Profiling

In 1994 the agency launched a series of ongoing labor market studies to help companies and their workers better understand changes in the workplace that were occurring because of automation and associated restructuring. The organization assembled a team of management representatives and production workers from 18 companies. The team's analysis focused on 10 factory jobs that were undergoing significant changes or were difficult to fill because of a shortage of skilled workers. These jobs included shipping and receiving clerk, general maintenance, MIG/TIG welder, punch press die-setter small parts assembly, floor assembly, roll form set-up, CNC programmer, milling machine setup/operator and plater. The objectives were to:

- Better understand the literacy and technical skills required to perform these jobs
- Develop accurate job descriptions for each job
- Develop career progression ladders
- Develop salary scales for these jobs
- Better understand how restructuring and modernization are affecting these jobs
- Develop training programs to support the career progression of the existing workforce

Ten working groups were formed to profile each of the factory jobs using the Develop A Curriculum occupational analysis. This analysis relies heavily on worker input. The information collected in the working groups was compiled into job profiles that the participating companies used to draft position descriptions and establish hiring and promotion policies.

*Source: "Local Labor Study Report," Jane Addams Resource Corporation, 1995.*

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## Collaboration With Industry Associations

Labor market research collaboration is only one of the ways the agency has sought to develop ties with key employers and organizations in the metalworking industry. During the past eight years, the organization has built solid working relationships with several major trade associations, particularly the Chicago chapter of the Precision Metalforming Association. It noted the organization's early efforts to collaborate effectively with employers to promote unique training initiatives, and even awarded the program and its industry partner, the Parkview Metal Products Inc., the 1997 A.R. Hedberg Training and Education Award. More recently, the association and the agency have partnered on several projects to create and promote training standards and programs, most notably the Metalworking Skills Assessment. The agency led the development of this pre-employment test of a worker's basic skills in order to identify training needs, and the association's Educational Foundation has licensed the test and is marketing it nationwide to its membership. This partnership has established the agency at the national level as a leading proponent of skills standards and training in the metalworking industry.

Since its inception, JARC has been an advocate for the needs and concerns of workers and local businesses, and it has lobbied vigorously... for funding to support workforce development and business retention programs.

The relationship between these entities has taken considerable time and effort to build. The Jane Addams Resource Corporation is an organization outside the mainstream educational system. Its emphasis on remedial skills development, adult learning techniques and entry-level competency training is distinct from the community college and vocational training programs offered in the city. Winning over the trade association was not easy. It had serious reservations about the value of technical training provided by a community group. The association carefully evaluated the curriculum before making a commitment. After eventually being convinced, it began recommending that member companies contract with the agency for training using its die-stamping curriculum, the only program of its kind in the state.

## Public Policy: Combining Workforce and Economic Development

The agency is one of a few community-based training providers that has established credibility with employers, and is rec-

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ognized as an important voice within the larger Chicago community of organizations concerned about workforce development. Since its inception, it has been an advocate for the needs and concerns of workers and local businesses, and it has lobbied vigorously at the state and local levels for funding to support workforce development and business retention programs. According to staff of the Great Cities Program at the University of Illinois Chicago Circle campus, the organization has "earned the reputation of representing an important industrial constituency in the city of Chicago."[17]

> *"Jane Addams Resource Corporation training is linked to the technical assistance it provides to metalworking firms as a delegate agency for two Chicago Department of Planning and Development economic development programs, the Local Industrial Retention Initiative and Model Industrial Corridors. As part of these programs, it has engaged in a number of planning activities to revitalize the corridor. These activities center on working with firms in upgrading their technology and production processes to stay competitive. In addition, it has initiated several programs to help firms in the corridor become more competitive. For example, it has coordinated joint bidding so that several firms can work together on projects or orders that none could do independently. Larger Ravenswood firms have agreed to subcontract with smaller firms, creating vertical networks."*
>
> — Interview with former board member Joan Fitzgerald, professor of Urban Planning at the New School for Social Research, University of Illinois Chicago Circle campus

The organization's policy work at the local and state levels spans program boundaries and involves a number of staff. Through the Chicago Jobs Council, the Partnerships Program director works toward supportive policies and services for low-income workers and welfare recipients. The director of the Targeted Development Program is an active member of several local business groups working to promote tax and zoning policies that support industrial retention. And the organization's former board chairman organized the State Agenda for Community Economic Development, a collaborative of community organizations formed to highlight the role of

[17] Joan Fitzgerald, interview with author, 1999.

community-based organizations in economic development at the state level. The group was instrumental in securing legislation that funded a new pilot program incorporating the Jane Addams Resource Corporation's model of workforce development.

The organization operates two distinct but closely related training programs — one for incumbent workers and one for the unemployed seeking to gain entry-level positions in metalworking. The same instructors teach both programs, using many of the same materials and methods. The older Metalworking Skills Training Program works with current employees of metalworking firms, generally those that specialize in fabricating or stamping operations. The more recent Opportunities in Metalworking Program offers a single, more intensive (30 hours per week for eight weeks) overview course to the unemployed. Because the training strategy is similar for both, the Metalworking Skills Training Program is presented in detail, and the differences between it and the Opportunities in Metalworking Program are noted where appropriate.

## Outreach

The organization markets the Metalworking Skills Training Program to metalworking companies. Individual contracts with each client specify topics and numbers of courses. For the past year, one of the agency's most significant client companies has contracted for almost half of its available training time to respond to the company's progressive and aggressive policy toward upgrading workers' skills. Plant managers typically make the decision to invest in employee training and select workers to participate in the classes. But trainers try to meet shop floor supervisors before each course begins to inform them of the content and, more importantly, to secure their support for punctual release of workers for class or access to specific equipment as needed for training. First-time students tend to be wary and self-conscious, mistrusting company motives for sending them to the course. Once trainers are "inside," however, workers know about the program and look forward to the next class. In fact, they seek to get on the list of selected students for particularly popular courses.

Attendance is high and dropouts are few. The only exception occurred with a company that adopted a policy to train 100 percent of its workers. After more than a year of intensive training, the company is now sending those who did not volunteer earlier. These employees generally lack the motivation to actively participate in

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training, often because they are reaching retirement age or because they need extensive remedial work.

Typically, the agency does not recruit client firms through unions, and its clients are mainly small, non-union shops. In the event that a union is present, it coordinates with the union-sponsored training in the company.

Outreach for the Opportunities in Metalworking Program is quite different because these participants are not employed. This program reaches the unemployed largely through other service agencies dealing with specific groups, such as the homeless or refugees. Students are referred by a range of private volunteer agencies including the Vietnamese and Cambodian Associations of Illinois, the Chicago Urban League, Chicago Women in the Trades and several shelters for the homeless. Interestingly, state welfare offices make few referrals. Welfare reform has put significant pressure on caseworkers to place Temporary Assistance for Needy Families recipients in jobs as quickly as possible, reducing their incentive to maintain active relationships with job training programs.

### Helping Women Access Metalworking Jobs

Chicago Women in the Trades trains and places low-income women in non-traditional jobs, primarily in the construction industry. When the organization decided to expand its focus to include metalworking in 1998, it found that this industry did not have an equivalent apprenticeship system. While the paths to entry are consequently less rigid, they are also less evident. Exploring the options for technical training, Chicago Women in the Trades began working with the agency, which it perceives as one of the best points of access to entry-level jobs for women, and one of the only training resources for those with less than eighth-grade level skills in math and reading.

## Participant Profile

Since its inception in 1991, the Metalworking Skills Training Program has trained 900 workers. On average, 200 workers from 30 companies are served annually. In fiscal year 1999, 224 workers enrolled in training and 205 graduated. Of these, 54 percent were



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Hispanic, 29 percent were Caucasian (many immigrants from Eastern Europe), and 8 percent were African American, with the remaining 9 percent comprising Asian and other nationalities. Women were 12 percent of graduates. While 13 percent have some college education and 60 percent have a high school diploma, 27 percent of trainees have had less than 11 years of formal education. Of the estimated 20 percent that can be characterized as the working poor, more than three-quarters are Hispanic.[18]

## Charles

Charles has 35 years of experience in the metalworking industry. He was a lead die setter and operator in a small firm that closed several years ago, and he recently accepted a lower-level position because he needed work. He has been unhappy with this new job, but has had trouble with some of the work he is expected to do. Even so, Charles thought it ridiculous that he needed training. But after taking the Metalworking Skills I class and now in the Die-Setter class, he realizes how much he didn't know. "I don't have a lot of years to work, but I'm glad I got these new skills so I won't lose my job. I want to be a die setter again." Charles believes that as an African American, metalworking was one of the best jobs he could have obtained. While he did not want his kids to follow in his career footsteps, he is glad his job paid enough to send his daughter to college.

## Luis

Luis, a 29-year-old Mexican immigrant, has been a punch press operator for several years. He works long hours, sometimes 60 or more hours a week, because, "you have to work when you can." Luis wants to eventually become a die maker, but in the meantime he has taken the Metalworking Skills I class and is beginning the Die Setter class. Eager to use what he has learned, Luis sometimes feels frustrated because his supervisor won't let him. He hopes he will be given more responsibility after completing the class.

[18] Education and income data from a 1997 evaluation. More recent attempts to collect this data have been challenged by clients' resistance to providing such information.





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The client profile has influenced aspects of course delivery. Half of the courses the organization teaches are in Spanish, for which the instructors have written Spanish-language materials. Some courses have been taught in Polish and Bosnian. And although workers' reported levels of education are high, basic skills — particularly math — are very weak. For example, at one significant client company, 75 percent of the workers failed a math pre-test that is given to screen and place workers in a company-sponsored training program. Those who fail are "passed back" to the agency, which has developed its niche as an effective trainer for remedial learners.

**Although workers' reported levels of education are high, basic skills — particularly math — are very weak.**

The profile of Opportunities in Metalworking Program students is determined in part by the program's funders. The Vietnamese Association of Illinois, for example, contracts for two programs each year to which they and other refugee social service agencies send their refugee clients who are Asian, African and other nationalities. Another funding organization mandates that the course train aid recipients, but these clients have proved difficult to recruit, primarily because Illinois embraced an aggressive "work first" policy in the wake of welfare reform. Consequently, caseworkers are under pressure to place recipients in jobs and are therefore reluctant to refer them to a full-time, two-month training program. In addition, agencies with longstanding contacts with aid recipients typically have their own contracts to fulfill and are unlikely to refer clients to other organizations. The Jane Addams Resource Corporation still sends fliers to the public aid offices, but these fliers usually attract people who happened to be in the public aid office but were not aid recipients themselves. In fiscal year 1999, 31 participants completed an Opportunities in Metalworking Program course. Of these, 42 percent were African American, 26 percent were Asian, 16 percent were Caucasian and the remaining were Arabic, Hispanic and African. In contrast to women's minor representation in the Metalworking Skills Training Program, they were 42 percent of Opportunities in Metalworking participants.

## Screening

Instructors administer a diagnostic tool to all students at the beginning of each class. However, they stress the importance of

establishing a rapport with students before giving the diagnostic to minimize how threatening it can be. The staff tends to downplay the importance of the test, communicating that everyone needs an opportunity to "sand away the rust." Results, as noted above, indicate weak basic skills. As one teacher explained:

*"We have found that their math deficiencies are often crippling. It affects their self-esteem and their wage and career mobility. The instructors have found that most of the workers do not know their multiplication tables, cannot perform math operations involving fractions or decimals, and many struggle even with subtraction of whole numbers. The workers commonly cannot read a ruler. In the areas of applied skills, the workers often cannot read micrometers, calipers or blueprints, despite having worked in manufacturing for five or more years. A high school diploma or a GED is no guarantee that the workers are proficient in math."*

To be eligible to enroll in the Opportunities in Metalworking Program, applicants must be able to read at a fifth-grade level. Applicants are tested for these requirements at an orientation session; those who pass are invited back for a personal interview. Upon enrollment, each student works with a case manager to identify additional educational needs or services that will help remove other barriers to training and employment. The agency notifies participants that they may be subjected to a drug screen, but to date has not felt the need to impose drug tests. Those accepted also take a diagnostic test to assess math skills, but these results are used to gauge the level at which students should be taught, and not as a tool to screen them out of the program.

### Stanley

**Stanley, a Nigerian refugee in the United States for two months when he started the Opportunities in Metalworking Program, said this about the diagnostic test: "I could not do a lot of things on the test. I was surprised when the teacher told me not to worry. How could I not worry about failing? That test experience was very strange, but they encouraged us to fill out what we were able to. Now I am so different. I can do these things now."**

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## Staff

Anita Flores has worked at the organization for more than 10 years and built the Metalworking Skills Training Program from the beginning. In addition to the fund-raising and management functions of her position, she cultivates relationships with client companies that the instructors maintain as they interact with the workers both in class and on the shop floor.

She supervises a staff of four instructors (three full time, one part time) in addition to some hired on an as-needed basis. What makes the organization's trainers good teachers first and foremost is their solid background in the trades. Second, they understand adult learners and the need to respect their experience and preserve their pride as students reveal what they do not know. Instructors perform multiple tasks including curriculum development, teaching, responding to problems on the shop floor and evaluating student progress. Most of these tasks require direct experience in the industry, and some staff members have been recruited from among those who have taken the courses, providing them with a first-hand understanding of the student experience in addition to industry experience. Language skills also are important, and two of the four teachers are fluent in Spanish.

**The staff has relied on a non-hierarchical team approach in order to develop the program and ensure that it meets employer needs and industry standards.**

The organization has relied on the wisdom of its training staff, and has encouraged participation at every step as they developed and expanded the training program. For example, staff members were instrumental in developing the modularized test concept as well as the test questions, layout and structure. The staff has relied on a non-hierarchical team approach in order to develop the program and ensure that it meets employer needs and industry standards.

## Content and Methodology

The organization's metalworking courses fall roughly into two categories: 1) the introductory courses that are offered eight to 10 times annually and typically taught on-site for a group of eight to 15 employees, and 2) the advanced classes focusing on specific aspects of manufacturing theory and practice and computer design. The table provides information on introductory and special topics, respectively.

### Introductory Courses

| Course Title | Topics | Duration |
|---|---|---|
| Metalworking Skills I | • Basic math<br>• Introduction to blueprint reading<br>• Precision measurement | Four hours per week for eight weeks: 32 hours |
| Fundamentals of Quality Control | • Use and care of precision measuring instruments<br>• Statistical Process Control<br>• Setting up die press operations | Four hours per week for eight weeks: 32 hours |
| Punch Press Die Setting | • Basic math and measuring<br>• Die and press parts<br>• Press operation<br>• Safety<br>• Proper clamping<br>• Material irregularities<br>• Troubleshooting | Six hours per week for eight weeks: 48 hours |

The advanced courses and special topics are offered less frequently and are taught at the agency's training center unless a client company can guarantee the eight-worker minimum for on-site instruction. The computer classes usually are taught at the organization's 14-station computer laboratory.

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### Advanced Courses/Special Topics

| Course Title | Duration |
|---|---|
| Trigonometry for the Trades | 16 hours |
| Statistical Process Control (SPC) | 10 hours |
| Geometric Dimensioning and Tolerancing | 10 hours |
| Punch Press Die Setting Seminar | 8 hours |
| Drill Press Set-up and Operation | 16 hours |
| Fundamentals of Milling Machine Set-up and Operation | 32 hours |
| Fundamentals of MIG Welding | 16 hours |
| Introductory and Intermediate AutoCAD | 32 hours |
| Introductory and Intermediate CNC Programming | 32 hours |

### Metalworking Skills I

This is the standard course most companies want as an introduction to basic math, blueprint reading and precision measurement — the core skills required of entry-level operators. It is also a prerequisite for most other courses. Although the basic curriculum has not changed in several years, it can be tailored to specific company requests for more emphasis on remedial math or, in contrast, to include more advanced topics of particular interest to the company. Instructors can teach the material the way they feel is best for each group of students, as long as the basic course objectives are met.

Emphasizing very basic skills, the curriculum is hands-on and closely linked to operations on the shop floor. Math covers operations with whole numbers, fractions and decimals, while shop math uses shop charts and formulas to solve workplace problems commonly encountered in the metalworking trades. These include calculating drill depth, bend allowances, tap drill clearance and material requirements. Blueprint reading stresses basic competen-



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cies in symbols (diameter, radius, angles, depth, counterbore, etc.), visualization skills, alphabet of lines, dimensioning, tolerances and notes and revisions. Company prints and inspection sheets are used as classroom tools. The metrology component stresses the correct use and care of precision measuring tools such as combination squares, dial calipers and micrometers. Hands-on activities are integrated with math and blueprint reading.

JARC has designed a curriculum that is closely linked to shop floor operations.

## Punch Press Die Setter Apprenticeship Program

The Punch Press Die Setting course provides workers with instruction in safe and efficient punch press set-up. The curriculum includes a review of basic shop math, measuring and print reading skills. Safety procedures are emphasized strongly. Workers set three dies and run a first piece during the course. They also set up auxiliary equipment.

The die setting course, while offered regularly as a course option to companies, is part of the Punch Press Die Setter Apprenticeship Program that, when introduced in 1996, was the first approved apprenticeship for die setters in the country. The one-year apprenticeship, designed for the experienced, semi-skilled operator, consists of 2,144 hours. Of those, 144 are classroom theory and 2,000 hours are on-the-job training. The program includes six courses: Metalworking Skills I, Advanced Blueprint Analysis, Technical English (or English as a Second Language), Die-Setting and two



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eight-hour seminars on special topics such as Statistical Programming Control or Computers in Manufacturing. Tuition and lab fees for the entire series totaled $1,520 in 1999. Subsidies from Prairie State 2000 are available for three of the six courses.

## Teaching Professionalism in Metalworking

> *"Almost anyone can get some training and start a job. But a professional die setter knows that his job is a craft. He learns the right way to perform the work, and he is open to learning better ways to do the job. Over time, he becomes more skillful in every area of die setting. ... A craftsman does not take shortcuts. He knows the proper way to set up the job, and he takes the same steps each time. This is the safe way, and it saves time in the long run. When you set up the work the correct way every time, you train your mind and your muscles."*
>
> — Excerpt from die setting course manual written by instructor Israel Martinez

**Instructors also emphasize teamwork ... to improve safety and to counterbalance a tendency toward competition among workers, especially the resistance of older workers to teach the younger ones.**

In addition to teaching basic math and technical skills in its introductory classes, instructors emphasize safety and quality. Israel Martinez explains that die setters who start working with minimal training waste material and incur safety problems. Teaching safety works to the advantage of both worker and employer because reducing accidents reduces downtime and increases quality and efficiency. In addition to hammering this message home in class, Martinez looks for ways to improve safety on the shop floor. To supervisors he cites any unsafe practices that he observes, such as oil on the floor, bare wires coming into contact with metal or unsafe employee positioning, such as when two employees work at the same machine but cannot see one another.

Instructors also emphasize teamwork — both in class and on the shop floor — to improve safety and to counterbalance a tendency toward competition among workers, especially the resistance of older workers to teach the younger ones. Martinez cites the case of Felipe, an older student and experienced die setter who was very uncooperative on the shop floor. After getting stuck on some math

## Raymond

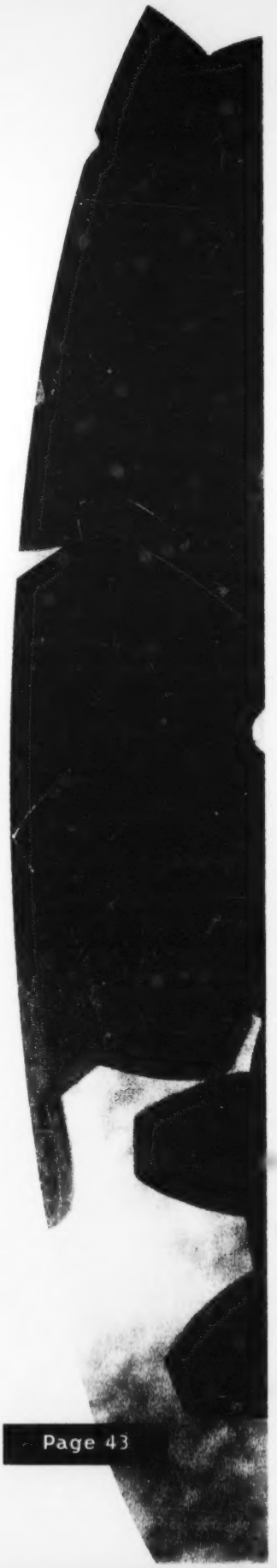
**Raymond, 62, a man with 25 years of experience as a die setter, sat bent over his math folder in class one day while others worked on the punch press at the training center. When asked why he wasn't with the others, he replied, "I thought I knew everything, but it turns out I didn't. I got a lot to learn about calculating, and I just want to keep studying on that because I do know how those presses work."**

problems in class forced him to work with the other students, Felipe became much more cooperative at work.

Similarly, instructors try very hard not to leave anyone behind. They give students extra help. In the Metalworking Skills I class, slower students can work on quizzes together and use a calculator. Although Martinez has the reputation of being a drill sergeant, he is flexible and allows students to progress at their own pace, spending more time on the problematic areas and less on those aspects of die setting they may already know from experience.

> *"At times, I felt the pinch between the eight high-end students and the three who had less experience and training. Two factors worked in my favor: 1) The more advanced students grasped my dilemma and understood when I had to spend more time with the less advanced student, and 2) with one exception, the less advanced students rose to the challenge and put in a lot of extra effort to attend Friday night computer labs and work on their programs in their spare time. The company should take pride in the team mentality that this group displayed."*
>
> — Excerpt from instructor Guy Loudon, from a report to an employer

The organization still faces challenges to maximizing the effectiveness of its teaching. Barriers include poverty and racism that likely interfered with these employees' ability to learn basic skills when they were young. Another barrier lies in the limited English of the various immigrant groups represented in the plants. Although the organization does teach at least half of its courses in Spanish and can offer classes in Polish and Bosnian, workers who have a command of English are in a better position for promotion.





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Hands-on instruction is a key part of JARC's teaching style.

Companies will often offer English as a Second Language courses in addition to courses in metalworking.

Finally, the shop floor itself offers barriers to effective training. Although production supervisors may be aware of production problems linked to low skills, competitive pressures between departments or work shifts tend to encourage short-term thinking and goals. Sometimes, older supervisors feel threatened by younger employees who may know more about new machinery and production methods. As a result, they delay releasing employees for class until certain production goals are met, or they pull students out of class. They often resist allowing workers to apply the knowledge they are gaining, particularly if it involves making any changes on the shop floor.

## Opportunities in Metalworking Program

Much of the principles and content outlined above also apply to the Opportunities in Metalworking Program for the unemployed. Two major differences should be noted: Being unemployed, these students participate in the program on what is almost a full-time basis, attending class five days a week (a total of 30 hours), for eight weeks. During that time, their training includes Metalworking Skills I, Die Setting, an introduction to computers, pre-employment or "soft" skills and company tours. This is an overview course that prepares them broadly for an entry-level position in metalworking.

The second difference is the investment in teaching the "soft skills" such as writing a resume, preparing to interview and learning appropriate behavior on the job. To date, the organization has contracted with an outside agency to teach this component, which involves about 25 hours of training during a two-week period. Now, however, its director wants to bring it in-house. Having completed five courses, staff members see that they need to be more effective in handling attitudinal and psychological barriers to suc-

cessful job placement for their students, many of whom are not addressed in the current curriculum. Problems with job placement have less to do with skills than they do with poor anger and crisis management, low self-esteem and lack of motivation. The organization faces a choice: Adapt the curriculum to address these problems or change eligibility criteria to screen out those who exhibit these problems.

## Opportunities in Metalworking Program Client Profiles

### Amos

Amos, an unemployed young man in his 20s, got interested in die setting during the course and proved to be a fast learner. In his first job he began setting progressive dies, and his employer sent him to trade school to learn tool and die making. The long training process – 1½ years of school plus a five-year apprenticeship – will eventually lead to a career as a journeyman paying as much as $80,000 a year.

### James

Referred by the Inspiration Café, a food program for the homeless, James enrolled in the program highly motivated to re-enter the workforce. Although the director perceived his difficulties in managing anger early on, James graduated and quickly got a job paying $8.50 per hour. But a few months later, James announced he had quit because his employer offered no training for advancement and his supervisor frequently yelled at him. The employer said that James had very poor attendance and eventually just failed to show up, but never formally resigned.

### Jeanine

A single parent in her 20s, Jeanine entered the training program in the fall of 1998 after years of being on and off welfare. After graduation, she quickly got a job paying $9 an hour, but it required a long commute from her father's home on the South Side to the factory in the northwest suburbs. But Jeanine has stayed, gradually acquiring new skills and passing tests that have raised her wages to $10 an hour. With her successful record, the agency is helping her find a new job at a more convenient location.

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In addition to stronger curriculum for crisis management and conflict resolution, the director is planning to respond to client requests for help with those topics that become relevant once a regular income is secured, such as goal-setting, budgeting, access to credit and financing a home.

Another challenge in placing clients in jobs lies in the changing face of the metalworking industry. Many of the companies that can employ entry-level workers are located in the suburbs, often out of geographic reach for the organization's poor, urban-based clients. For graduates able to accept a job that requires a daily commute of three hours, the Opportunities in Metalworking Program is often able to help them use this current work experience to leverage a better position after a few months.

### Prairie State 2000 Authority

Established in 1986 to support skills upgrading for workers in manufacturing, Prairie State 2000 is a state agency that targets small- to medium-size companies with fewer than 450 employees. It operates two programs — the Employer Training Assistance Program for companies in financial trouble and the Individual Training Assistance Program, whose "customer" is the individual worker. The organization is an active partner in the latter, which works like this: Prairie State 2000 approves training providers, which then recruit students for their courses. Prairie State will reimburse 50 percent of the cost of training of any worker who is an Illinois resident, is employed by an Illinois-based company and attends 80 percent of the course. The student's employer pays a 50-percent match. In 1999, reimbursement was set at $650 per student, plus $50 for administrative costs incurred by the provider.

## Funding

Major funding for these programs comes from the Prairie State 2000 Authority. In 1999, Prairie State had a budget of $1.5 million to allocate to its approved list of 49 active training providers. Most of these providers are community colleges, universities, industry associations or unions. The Jane Addams Resource Corporation



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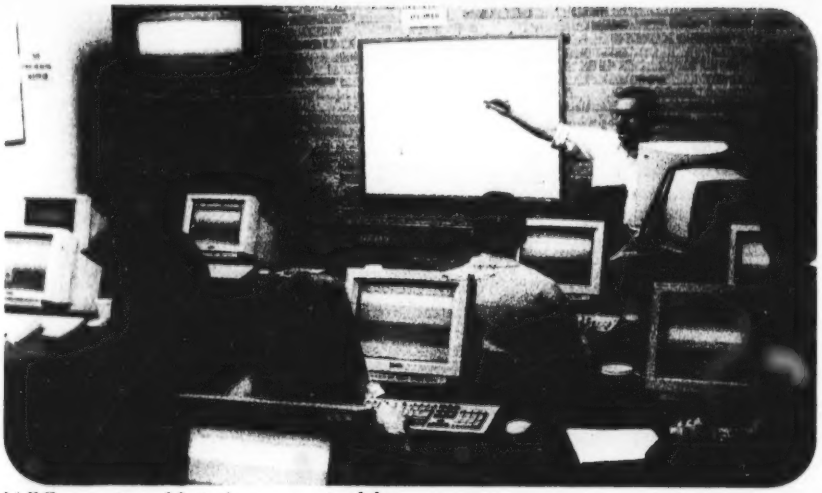

JARC operates a 14-station computer lab.

is one of only two nonprofit, community-based organizations on the list of preferred providers.

While demand for training is obviously robust, the state training subsidy is critical to the organization's success in convincing companies to send their employees to its courses. To meet the state's required 50-percent match, companies offer paid release time for workers attending training. The balance is met through fees that the agency charges the companies. The employer fee structure, negotiated on a case-by-case basis, is generally structured on a sliding scale based on the size of the firm and its ability to pay. Anita Flores contends that the paid release time and reduced production output are all that some of her smaller clients can afford. While she does not have detailed financial information on companies, she believes that many of her clients could not purchase training at full cost, and she resists pressure to be more commercial or entrepreneurial with them.[19] Yet companies are telling her that training is key to their survival because their best strategy for competing against low-cost imports — shifting production to higher-end, specialty products — requires retraining their workforce. Presently it appears the organization will continue to subsidize the smaller, struggling companies that have maintained their commitment to providing viable, family supporting jobs.

Additional activities integral to the effectiveness of training, such as the development of diagnostic tools and labor market

[19] Companies whose precarious financial position would qualify them for Prairie State's program often do not apply because they resist divulging the financial information that the state requires.

research — which are performed in-house by the trainers and other staff — have been funded separately, primarily through grants from the Joyce Foundation. These activities, while not directly associated with the provision of training, are pivotal to service quality and to the organization's ability to market training to employers.

Funding to launch the Opportunities in Metalworking Program has come from a combination of public and private sources. A three-year grant from the Dislocated Workers Manufacturing Technology Demonstration Program of the U.S. Department of Labor's Employment and Training Administration provided the initial funding. Subsequently the Jane Addams Resource Corporation has been able to match the initial labor department grant with funding from the Charles Stewart Mott Foundation and the Fry Foundation.

## Conclusion

Growing demand and a full calendar define successful sector-based training. The organization is developing a monitoring system to track changes in wages, job responsibilities and status, which it needs to back up anecdotal evidence about a changing company culture as it regards employee training. Training continues to adapt to the changing demands of its marketplace, while remaining rooted in sound principles of adult education. Companies are increasingly interested in improving technology skills and cross training that will enable them to rotate workers among multiple functions. To accomplish these goals in a context of labor shortages, they have little choice but to upgrade skills of existing workers. Although attitudes do not change overnight, the days when companies immediately equated training with union organizing are fading fast.

The Jane Addams Resource Corporation funds its training and other sectoral-related activities from many different employers, industry associations, philanthropies and governmental sources, each with different reporting requirements. Yet the organization also has developed its own measures for monitoring and measuring progress toward its objectives of industrial retention within the Ravenswood community of North Chicago, and improving literacy and technical skills, job security, career mobility and income potential among workers in the metalworking industry. To track its progress toward key goals, the agency measures or verifies impacts within the confines of the Ravenswood community in which it is rooted, as well as those impacts on the metalworking firms in the broader metropolitan region.

## Industrial Retention Outcomes

The Targeted Development Program focuses on industrial retention in the community and, more specifically, within the Ravenswood Industrial Corridor. Of particular importance is the number of manufacturing jobs it is able to help retain. While there is a small concentration of metalworking firms in the community, the program does not focus its assistance efforts only on these companies; rather the goal is to benefit all of the manufacturing firms in the area. The agency's efforts to channel public resources into making physical improvements to streets and viaducts eases problems with truck delivery. This, along with the agency's advocacy work in developing the special benefits district, has helped create a more conducive climate for small manufacturing establishments. Since the Targeted Development Program began seven years ago, there has been only one conversion of a manufacturing facility to a non-manufacturing use within the corridor.

In other related job retention/creation efforts, the agency has rehabilitated and reconfigured vacant larger-scale manufacturing facilities so that they are appropriate for smaller businesses. Filling these three manufacturing buildings with new tenants has provided 122 jobs, 35 of which were created by start-up companies or expansions of existing firms in the neighborhood. Beyond the relatively narrow confines of the Model Industrial Corridor, the organization also looks at the employment trends in the larger community.

As noted previously in the Industry Context Section, overall employment within the area has been decreasing and manufacturing employment has steadily lost ground. Between 1980 and 1990 the communities it serves lost an estimated 7,000 manufacturing jobs. While the agency believes this decline has slowed, employment opportunities in machinist occupations continue to shift to the suburban areas of Chicago. For this reason, the organization's workforce development strategies now target a wider geographic range.

## Workforce Development Outcomes

The agency has four principal objectives for low-income workers in the metalworking industry:

1. Improved workplace literacy
2. Improved technical skills
3. Development of career progression ladders
4. Increased commitment to training among employers

The agency evaluates how well it is meeting these objectives from the perspectives of both workers and employers.

### From the Vantage Point of Workers

The typical metalworker who attends a Metalworking Skills Training Program course also works a minimum of 40 and frequently up to 50 to 60 hours a week. While paid release time is provided, demanding production schedules and shop foremen, who all too often consider training a luxury, add additional disincentives to taking one of these courses or devoting full attention to the class. The agency, therefore, looks to completion rates as an indication of the value the worker sees in its training. During the past several years, between 91.5 percent (fiscal year 1998) and 94 percent (fiscal year 1997) of workers who enrolled in Metalworking Skills Training Program classes completed training. Students complete evaluations of the training courses, and these evaluations are summarized and shared with their employers and used by staff to improve the training. While the organization does not systematically summarize the student evaluations, an informal examination of about half of the previous year's evaluations revealed a high degree of satisfaction.

While the organization does not systematically summarize the student evaluations, an informal examination of about half of the previous year's evaluations revealed a high degree of satisfaction.

One student wrote, "I liked learning about things I did not

know ... and that I can now do different kinds of jobs. I like that this program has given me a better future." Students reported feeling prepared for more challenging work in nearly all the exit evaluations scanned. However, based on anecdotal information from trainers, students did not always feel their supervisors recognized their new skills, or that they were being allowed to apply those skills at work. Mid-level managers are now being asked to attend an abbreviated class to see firsthand the benefits of the training, as part of a recent innovation in which the agency is attempting to increase buy-in from the supervisors and job foremen.

A key first step to achieving the agency's overall objective of increasing career advancement opportunities and wage increases for entry-level workers is enhancing basic math, measuring and print reading skills (the Metalworking Skills I course). To determine progress made toward this immediate objective, since 1996 the agency has assessed these skill capabilities at the beginning and end of every class. The basic skill enhancements for fiscal year 1998 are indicated below.

**Workplace Math Proficiency for Workers Completing Metalworking Skills I in Fiscal Year 1998[20]**

| Test Scores (Percent Correct) | Incoming Student Scores (Percent of Students) | | Post Class Scores (Percent of Students) | |
|---|---|---|---|---|
| 1-20 percent | 44 | (30 percent) | 0 | (0 percent) |
| 21-40 percent | 49 | (34 percent) | 0 | (0 percent) |
| 41-60 percent | 27 | (19 percent) | 1 | (1 percent) |
| 61-80 percent | 21 | (14 percent) | 26 | (18 percent) |
| 80-100 percent | 3 | (2 percent) | 119 | (81 percent) |
| Unknown | 2 | (1 percent) | 0 | (0 percent) |
| Total | 146 | (100 percent) | 146 | (100 percent) |

*Note: Scores are available only for the 146 students who attended at least 80 percent of classes, which represents 91.5 percent of all enrolled students.*

[20] The agency's fiscal year 1998 was July 1, 1998 through June 30, 1999.



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These improvements in proficiency are achieved by workers who have limited educational backgrounds, demanding work schedules and limited English language capability. Trainers "... have seen workers holding two jobs attend classes without missing any time, and workers who have only a second-grade education complete the class being able to read precision measuring instruments and complicated blueprints."[21]

The agency has only a limited number of Opportunities in Metalworking Program graduates to assess because the program has been operational for only one full year. Unlike the Metalworking Skills Training Program staff, Opportunities in Metalworking staff members do not use the same pre- and post-test to determine participants' skill improvements. Given that the participants in the latter program generally have no industry experience, staff members do not test them on material specifically related to die setting in the pre-test, but include this material in the post-test to assure that participants have achieved a basic level of metalworking competency.

**The agency has recently implemented a new management information system that will enable its training programs to profile students and to track all services each student receives.**

Of the 31 men and women who enrolled in the Opportunities in Metalworking Program in fiscal year 1998, 23 of them, or 74 percent, completed the proficiency test with a satisfactory score and graduated from the program. The agency was able to place 12 of these graduates within 90 days, but lost touch with many of the others. Staff members note that the program serves a more transient population, with many students living in temporary arrangements with friends or relatives. In addition, a few graduates were unwilling to accept employment because of personal issues. The agency continues to have more demand among employers for graduates than it can meet. The average placement wage for Opportunities in Metalworking Program graduates is $8.66 per hour, and three months after their date of employment 10 of the 12 placements were still employed. Performance indicators are expected to improve markedly as staff members gain more experience in operating a program for unemployed clientele.

The agency has recently implemented a new management information system that will enable its training programs to profile students and to track all services each student receives. Eventually, the agency plans to track specific indicators of a participant's progress over time (such as career advancement, educational attain-

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[21] Jane Addams Resource Corporation, "The Metalworking Skills Evaluation Project," a report to the Joyce Foundation: 15.

ment, etc.). While it has had difficulty convincing both workers and firms of the necessity to provide information — particularly personal financial information — significant strides have been made in staff training and working with employers to improve reporting. The combination of staff development, building better employer relationships and adopting appropriate technology should greatly enhance the organization's objective of having a more detailed picture of its clients and to be able to better explain to workers how training and other services improve their productivity and their prospects for advancement.

### From the Vantage Point of Employers

While never losing sight of the needs of workers, the agency clearly understands that the training services it provides must accommodate employers. From this standpoint it evaluates itself from the perspective of meeting specific needs of the firms that use its training services. Upon the completion of every training class, the trainer prepares a detailed report on the class that includes an in-depth description of the course and its objectives, attendance records, test scores and a detailed account of the progress of each student. In addition, each year the agency surveys all of the firms whose employees have attended Metalworking Skills Training Program classes to determine the impact of training on company operations and their employment and training practices.

In fiscal year 1998, employees from 28 firms participated in training courses including Metalworking Skills (math, measuring, print reading), Punch Press Die Setting, Computer Training, Introduction to CNC, MIG Welding, CAD, Supervisory Training, and English as a Second Language. Of these 28 firms, 17 responded to the survey. A total of 24 courses were provided to the responding firms. These respondents reported that 79 percent of 24 courses directly helped increase worker productivity, in some cases by as much as 60 percent. Increased productivity resulted because of reduced waste; improved worker communication and problem-solving skills; reduced set-up time for punch press die and other production processes; and improved safety practices.

As one of the key objectives is to institutionalize training within firms, employer willingness to contract with the organization

again for additional training is an important indicator of progress. Historically, about two-thirds of all firms receiving training services have contracted for additional training classes. Currently the agency is intensively working with around 17 firms and establishing ongoing training programs with them. Further, after receiving the agency's training services, 69 percent of the firms reported that they would be interested in hiring graduates from the entry-level metalworking training program.

### What Employers Report About the Metalworking Skills Training Program:

*"Highly effective ... subject specific ... excellent programs."*
*"Instructor ... very enthusiastic and knowledgeable."*
*"Ability to tailor the course to our needs."*

— Employer survey responses from fiscal year 1998

**Historically, about two-thirds of all firms receiving training services have contracted for additional training classes.**

By establishing close working relationships with employers, the agency also has come to see how important training can be in reinforcing its community-focused industrial retention objectives. Indeed, it can point to cases where its training has helped tip the balance favorably when a firm was weighing whether to stay or leave, such as Parkview Metal Products. Four hundred metalworking jobs were saved because Parkview remained in Chicago.

## Performance from the Vantage Point of Funders

Compared to its own self-assessment efforts, the agency's funding bodies have relatively minimal reporting requirements. However, in most cases, it provides supplemental information evidencing the impact of its training.

### Prairie State 2000 Authority

The Prairie State 2000 program, the primary funding mechanism for the Metalworking Skills Training Program, has no formal performance or reporting requirements other than meeting the eligibility guidelines (as previously outlined in the Training Section) and completion of training by a student. This latter requirement is met by attending 80 percent of the classes. However, the agency furnish-





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es the authority with a much more detailed accounting of student performance, such as the proficiency scores and other written evaluations of students' progress. No doubt this additional information helps in fund-raising, as it receives the largest allocation among the state's 57 approved providers of training services.

## U.S. Department of Labor, Employment and Training Administration

Beginning in 1999, the Opportunities in Metalworking Program and the Metalworking Skills Training Program have been funded through a special U.S. Department of Labor grant from the Dislocated Workers Manufacturing Technology Demonstration Program. The grant is being administered through the Policy Research Action Group of Loyola University Chicago. Two other community-based groups are receiving funding: the Chicago Machining Institute and the Greater West Town Corporation. Both train unemployed individuals, while the Jane Addams Resource Corporation will train both incumbent and unemployed individuals. The costs per participant for the three participating agencies are as follows:

### Per-Participant Training Costs for the U.S. Department of Labor Demonstration Grant

**For unemployed workers**

CMI: $13,000 per participant for screw machine set-up training
$ 9,600 per participant for automatic coiling training
$ 9,100 per participant for quality control training
$14,300 per participant for industrial inspection

GWTC: $14,500 per participant for wood manufacturing technology training

JARC: $ 2,941 per participant for Opportunities in Metalworking training

**For employed workers:**

JARC: $ 700 per participant for Metalworking Skills technical training
$ 125 per participant for computer training

*— From the U.S Department of Labor award letter to Loyola University, May 5, 1998*

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The cost figures from Greater West Town Corporation, Chicago Machining Institute and the Jane Addams Resource Corporation illustrate the wide variation that exists within the workforce-training field, even among programs that are relatively closely aligned. These cost variations occur because of differences in length of training, capital equipment requirements, etc. For example, the Greater West Town Corporation program is 450 hours, while the Opportunities in Metalworking Program runs about 240 hours.

The grantees were required to establish their own performance benchmarks that are summarized below.

**Performance Benchmarks for the U.S. Department of Labor Demonstration Grant[22]**

| | CMI | GWRC | JARC unemployed clients | TOTAL unemployed clients | JARC employed clients | TOTAL |
|---|---|---|---|---|---|---|
| Enrollments | 40 | 10 | 36 | 86 | 209 | 295 |
| Graduates (Graduation rate) | 34 (85%) | 8 (89%) | 28 (78%) | 70 (81%) | 193 (92%) | 263 (89%) |
| Placements (Placement rate) | 33 (97%) | 7 (88%) | 24 (86%) | 64 (91%) | NA | NA |

Just as program costs vary, the benchmarks established by the three programs reflect the differences in recruitment, in-program retention and placement strategies.

## Charles Stewart Mott Foundation

The Charles Stewart Mott Foundation has provided a new two-year grant for the Opportunities in Metalworking Program. Specific performance benchmarks have been developed for the first year of the grant that include the following targets:

[22] Derived from the internal documents provided by the Jane Addams Resource Corporation.



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**Objectives 1999-2000**

| | |
|---|---|
| Number of Graduates: | 84 |
| Number of Placements at 30 days: | 75 |
| Placement rate by percent: | (89 percent) |
| Number of Placements at 90 days: | 67 |
| Placement rate by percent: | (80 percent) |

The Charles Stewart Mott Foundation will be assessing the training program's performance against these targets in addition to other indicators currently under development.

## Program Costs

The Jane Addams Resource Corporation's fiscal year 1998 operating budget for all of its programs was about $1.35 million. The Metalworking Skills Training Program and Opportunities in Metalworking Program expenditures totaled $416,000, or slightly less than a third of the agency's operating expenses for the year. The established Metalworking Skills Training Program accounted for the majority of training program expenditures, $320,217, while Opportunities in Metalworking Program expenditures were $96,309. Personnel costs of $324,355 accounted for more than three-quarters of training program expenditures, which included salaries, benefits and contractual wages. Administrative costs were $29,711, or about 7 percent of the total fiscal year 1998 training expenditures, with business operations (rent, utilities and office supplies, etc.) and a few other miscellaneous costs making up the remaining 15 percent.

The agency considers it important to recognize the total cost of operating the Metalworking Skills Training Program as a sectoral training program, including the costs of labor market research, developing skills assessment tools and other related research activities. However, while these other activities contribute to and enhance the quality of training, they are not directly associated with the delivery of services. The direct training costs of the Metalworking Skills Training Program totaled $203,866 in fiscal year 1998. Therefore, this is the figure used to calculate specific ratios such as cost per trainee, cost per graduate and cost per placement. The following table summarizes those results.

**Metalworking Skills Training Program Cost Ratios for Fiscal Year 1998**

| | |
|---|---|
| Total operating costs of Metalworking Skills Training Program, including labor market research and other related activities | $320,217 |
| Total direct training costs | $203,866 |
| Number of trainees | 224 |
| Direct cost per trainee | $910 |
| Number of graduates | 205 |
| Direct cost per graduate | $994 |

**Opportunities in Metalworking Skills Training Program Cost Ratios for Fiscal Year 1998**

| | |
|---|---|
| Total direct training costs | $96,309 |
| Number of Trainees | 31 |
| Direct cost per trainee | $3,106 |
| Number of graduates | 23 |
| Direct cost per graduate | $4,187 |
| Number retained in job after 30 days | 10 |
| Direct cost per graduate | $9,630 |

It is important to note that the outcome measures for the Opportunities in Metalworking Program are for the first full year of operations and, therefore, do not necessarily represent a true picture of the performance of the program.

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## Focus on the Community or the Market?

The success of the agency's sectoral approach to workforce development poses daunting strategic challenges for an organization that incorporates both community education to fulfill a broad range of human needs and worker training to meet needs in the market. It articulates its key strategic challenge during the next five years as linking its work in these two spheres – the Community and the Market.

The dynamics of the market sphere are global in nature, responding to efficient production, profitability, availability of trained workers and capital costs. Market forces drive programs focused on training. The dynamics of the community sphere, on the other hand, revolve around increasing opportunities for creativity and self-expression, fulfilling human needs and building meaningful relationships. The community needs broader education. In the past, the organization has managed to do both.

The current dilemma is whether the organization should continue to invest in and foster both spheres. Or, should it sacrifice some of its existing community-oriented efforts to grow those that are more market driven? Certainly for much of the past decade, the Metalworking Skills Training Program has driven the organization's growth. The market for training has taken the agency well beyond the limits of the Ravenswood community, opening the possibility of building a regional or even national program. Should it pursue this obvious strength, an important source of revenue and national recognition? In so doing, is it ready to accept the implications of a market-driven strategy — a regional, single-sector strategy focused on upgrading the skills of employed workers? Or, should the organization maintain its investments in the local community, broad-based education for its residents and technical assistance to its diversity of businesses?

To expand its successful sectoral approach to workforce development in the community, the Jane Addams Resource Corporation has considered expanding and targeting its sectoral training programs to other industries in the corridor. It explored this possibility in the health care sector, as there are several large employers in the area, but eventually rejected this course because

the job options for low-skilled workers did not appear to hold viable opportunities for career development. In addition, it did not have substantial knowledge of the health sector through any of its staff members and would have needed to make a significant organizational effort to develop the expertise needed to find promising niches in that sector. Now, the agency believes that its next training niche will be in computers, and it has already begun to tap into this market both among metalworking clients and businesses in the corridor. In some sense, this is a more natural extension of its strategy, given the fact that current client firms are adopting new technologies. But the kind of expansion to come to the scale of the metalworking program is years away. Another alternative is to spin off the metalworking training as a private entity that can expand in any number of ways, while the nonprofit community-based organization further cultivates its local community roots.

**JARC believes that its next training niche will be in computers, and it has already begun to tap into this market both among metalworking clients and businesses in the corridor.**

In its recently adopted five-year strategic plan, the agency chose to maintain its current course, serving both community and market-oriented constituencies. The strategy aims to integrate t... community and market dynamics in ways that are mutually reinforcing. For example, the establishment of the Opportunities in Metalworking Program, which targets community residents, builds on the years of experience and relationships with suburban employers gained from the Metalworking Skills Training Program. In turn, the students in the entry-level program are encouraged to bring their family members for tutoring in the Adult Learners Program. By leveraging the strengths of its community roots and market orientation, the agency remains true to its organizational mission while maximizing the impact and effectiveness of its services.

## Funding Challenges

The development of the Metalworking Skills Training Program illustrates the formative effect of funding. In its infancy, having Prairie State 2000 replace the Community College of Chicago as the program's primary funding source meant that the program's focus changed from workplace literacy to a skills-based orientation, radically altering the course of the program's development. The relationship the agency has subsequently cultivated with the Prairie State 2000 Authority has been critical to building the Metalworking

Skills Training Program to scale and garnering employer commitment to workforce development. While the agency has diversified the funding base in recent years, Prairie State remains the primary backer. Further, given the goals of the program and the type of businesses targeted, it is quite unlikely that the program could generate sufficient revenue through agency fees to achieve independence from the influence of funding sources. Thus, any change in the availability or requirements of Prairie State 2000 funding would have consequences for the future growth and character of the program.

## Bridging Employer Needs and the Capabilities of Workers

The Jane Addams Resource Corporation views the metalworking industry as an important focus in its strategic mission for a number of reasons, but perhaps above all, metalworking is significant because it is an important route into the labor market for immigrants, low-skilled workers and non-English speaking Americans. While metalworkers previously learned their occupations through on-the-job training and apprenticeship programs, during the past 20 years that system has broken down. Moreover, the new immigrant groups from developing countries, African Americans and women moving into entry-level positions are generally not well prepared for metalworking employment. On the other hand, their employers are frequently not capable of providing the remedial and other training to fully utilize these workers and enable them to advance to positions that require higher skills. The sectoral approach to workforce development illustrates how to bridge this mismatch by facilitating and encouraging employer investment in developing the skills of the entry-level workers.

## Economic Opportunity in a Contracting Sector

It is a natural inclination to think that publicly or privately subsidized training should target only growth industries — after all, that is where new jobs are being created. However, as illustrated in the metalworking industry in Chicago, there can be a large number of job openings in an established sector, even when its overall

employment is shrinking. In the case of Chicago's metalworking industry, older workers who are leaving the workforce are creating jobs. Metalworking jobs historically have been the conduit by which immigrants and individuals with limited education have been able to earn good wages and work their way into the middle class. Moreover, in some niches of the industry, the vacancies are in higher-skilled positions, such as die setting. The sectoral strategy is not only to provide training to improve the skills and productivity of entry-level workers, but also to create a cultural change in firms so that lower-skilled workers get the chance to move up to positions of higher responsibility and that require more technical skills. In addition, by helping companies better use their workforces, the agency increases their productivity and ability to compete in niches requiring specialized and high-quality work, which are likely to be viable for U.S. firms.

JARC organizes research projects to engage its training staff, employer representatives and workers to diffuse lessons more broadly and to enhance collaborative relationships within the industry.

## Jane Addams Resource Corporation as a Learning Organization

The agency's labor market research is an important aspect of a sectoral training strategy because it offers continuous learning and improvement. By collecting and using information, it is able to make informed decisions in developing new training competencies and in reshaping existing programs. The agency organizes research projects to engage its training staff, employer representatives and workers to diffuse lessons more broadly and to enhance collaborative relationships within the industry. Building on these relevant findings and collaborative relationships, it has designed and marketed the Metalworking Skills Assessment Tool, established the Die Setter Punch Press Apprenticeship Program and the Training Center for the Metalworking Trades. The Jane Addams Resource Corporation has used its need to understand the training requirements of the industry as an opportunity to engage its staff, employers and workers in a learning dialogue that has yielded critical insights into the skills requirements of employers and the educational needs of workers. In demonstrating its growing industry knowledge by expanding the scale and improving the quality of its training initiatives, the agency has established its reputation and influence within the industry and among government policy makers and other training providers.

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